EMERGING TRENDS IN PRESERVATION AND DISSEMINATION OF E-BOOKS FOR DISTANCE LEARNERS

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ABSTRACT

If ever a promising technology existed for education- and distance learning in particular- It would be e-books. Compared to the print documents, the use of e-books leaped high in the recent times. Academic and scholarly libraries are at the fore front of these changes and many are preparing for a significant shift from physical to electronic material presentation within a short period. This paper will examine why e-books should matter to the distance learners, and it also tries to debunk some myths about the e-books in the process. In addressing these issues, the paper tries to provide an assessment of e-book technology in view of its potential as well as its current limitations while also calling attention to future developments that holds genuine promise for learners.

Key words: E-books, Digital Preservation, Dissemination, Distance Learners.

Introduction

For several years, it has been anticipated that electronic books will gain widespread use as an educational tool, but this has not yet actually come to fruition. It seems that, for the first time, all of the necessary elements are in place: inexpensive but highly functional portable reading devices, an increasing number of available book titles, and a technologically literate student population hungry for new media. The stage thus appears to be set for the single most widely used tool in the history of education, the printed textbook, to follow the slide rule and mimeograph machine down into the pit of obsolescence. The students are obvious targets for e-book utilization because college students are typically prove to embrace new technologies and also purchase a high volume of expensive, cumbersome and rapidly discarded books.

1. Humble Origins

E-books have had a long journey to gain acceptability, starting in the early '70s as a digital library of public domain books known as Project Gutenberg. These were mostly restricted to specialty domains and closed interest groups in their earliest avatars. It is really the 1990s and the explosion of the Internet that made the humble e-books, along with their poster child format PDF, enters the mainstream. Today we see them in one form or the other, be it a product manual or the latest best-seller and, in our context, in some of the nation's top institutions' digital libraries.

2. Shift from Print to Electronic

Narrow shelves full of books, some new and sparkling, some old and musty, have long been the retreat of undergraduates frantically finishing papers, graduate students searching for the perfect argument in support of their theses, and faculty performing literature reviews. eBooks, however, are starting to make inroads in the purchasing patterns of libraries and individuals. By December 2010, eBooks made up to 10 percent of trade-book sales, and in the last week of December about 3 million to 5 million e-readers were

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activated. By May 2011, Amazon was selling more e-books for the Kindle than print books by a ratio of 105 Kindle books to 100 print books.

As with mass market, eBook growth, and scholarly eBook publications have seen a measurable increase in sales in 2011, with the percentage of sales from eBooks at one university press going from 1.6 percent in 2010 to 11.3 percent in February 2011 (perhaps attributable to the number of eBook readers given as gifts in the 2010 holiday season). Public libraries are also witnessing a dramatic increase in eBook lending: according to the New York Public Library, which has the highest circulating eBook library in the U.S., eBook loans are up 36 percent compared to the same time last year. The academic community has been licensing and becoming dependent on eBooks for years, since before the debut of the first e reader - the Sony LIBRIé in 2004.

Those narrow shelves of print books are preserved for the long-term due to the conservatorship of a few dedicated libraries and the general ownership of many libraries. Librarians and archivist know much about both the challenges of and solutions for preserving traditional books for centuries, if need be. What is not so clear is if we even understand the problems involved; much less have any solutions for, preserving eBooks for the long haul.

Many individuals, publishers, and libraries have copies of eBooks today, but simply knowing that many copies of electronic content exist does not protect digital content. Long term protection arises from constant care and attention to the preserved content. Today's eBooks are often tied to a specific piece of software or hardware just to read them or they reside only on the publisher's servers. Even if an individual or library owns the bytes that compose the eBook, it is impossible to move those bytes from one platform to another (and, most libraries and individuals are likely to have licensed eBooks and do not actually own them). To preserve access to eBooks, the intellectual content of the book must be unpacked from its reliance on particular hardware and software and then that content must be securely stowed away and maintained by one or more preservation agencies (such as third party organizations dedicated to preserving digital content, national libraries, or cooperative digital preservation efforts among libraries).

3. Digital Preservation

Within the scholarly community, an early expression of the need for robust preservation solutions for digital content was Urgent Action Needed to Preserve Scholarly Electronic Journals, a statement endorsed by the Association of Research Libraries, the Association of College and Research Libraries, and others in 2005. At that time, the consensus of the academic community was that e-journal content was the genre of electronic scholarly publication most in need of preservation. Following this call to action, a variety of reliable long-term preservation arrangements for e-journals emerged, including the e-journal preservation service offered by Portico. Since 2005, however, more and more scholarly content has been published in electronic form, including digitized collections, grey materials, research output, government documents, and, of course, eBooks addressing eBook preservation is a logical next step for the academic community. Library reliance on this material is increasing as the number of published eBooks is growing exponentially.

3.1. Goals of Digital Preservation

Digital preservation (whether of e-journals, eBooks, or anything else) is the series of management policies and activities necessary to ensure the enduring usability, authenticity, discoverability, and accessibility of content over the very long term.

The key goals of digital preservation include:

- **Usability** — the intellectual content of the item must remain usable via the delivery mechanism of current technology;
- **Authenticity** — the provenance of the content must be proven along with its authenticity as a replica of the original;
- **Discoverability** — the content must have logical bibliographic metadata so that the content can be found by end users through time; and
- **Accessibility** — the content must be available for use by the appropriate community.

At a base level, one published digital object looks like any other. Every object consists of some metadata and some files:

Some metadata	+	Some files	=	Digital Song
Some metadata	+	Some files	=	Digital Slide
Some metadata	+	Some files	=	Digital Journal Article
Some metadata	+	Some files	=	Digital Book

4. E-Book Preservation Challenges

While eBooks are built from the same building blocks as all digital content, they do present some unique preservation challenges. Three particularly thorny challenges are highlighted below: versions, digital rights management, and metadata.

4. 1. Versions

Books have a history of publication complexity. They have different editions, translations, publishers, publishing runs, sizes, and even different covers. As an exemplar, consider *Anna Karenina*. There are hundreds, maybe thousands, of manifestations of this work: the original manuscripts, the original serial publications in The Russian Messenger, the first version published in book form, many subsequent print editions, many language translations, the 15+ Kindle eBook versions, the 15+ Nook eBook versions, the two Project Gutenberg eBook versions, and more. In the electronic world, these existing issues are complicated by the ease with which it is possible to make updates or issue retractions on digital content, such that there may be multiple versions of each manifestation. Managing this complexity will be one of the unique challenges of eBook preservation.

4.2. Digital Rights Management (DRM)

Digital Rights Management (DRM) is another challenge for eBook preservation. DRM is technology, often embedded in a file or device, which enforces the rules of use defined by the provider of the content. DRM is particularly prevalent with eBooks, where it is common for books purchased by individuals to be tightly tied to that individual (e.g., it is often difficult to share or lend one's eBook with a friend) or to a particular device (e.g., books purchased for one appliance or application can only be read on that appliance or application). eBooks sold or licensed to public and academic libraries are also wrapped in DRM which limits the number of times the book can be borrowed, the number of users who may borrow it at one time, or even the locations at which it can be read. The purpose of DRM (which is to limit access and replication) increases the complexity of preserving access for the long-term.

4.3. Proliferation of Bibliographic Metadata

Another challenge of eBook preservation is the proliferation of bibliographic metadata at many different levels of the publication. Metadata is neither simple nor straightforward — a publication does not have only an author but an editor, a translator, and so on. eBooks have all the traditional challenges of bibliographic metadata, plus a number of unique considerations. For example, many eBooks within the academic community are delivered a chapter at a time and thus there is chapter-level metadata to be preserved (and perhaps a representation of the book as a whole and as individual chapters must be preserved). In addition, many books, especially within the scholarly community, are part of a series and thus must include metadata placing them within the context of the series or they are one volume in a multi-volume set, where the entire set is the "book." Managing this hierarchy of metadata in such a way that preserved eBooks and accurately delivered in the future is a challenge that differentiates eBooks from e-journals.

5.   Portico's e-Book Preservation Solution

Portico is a not-for-profit digital preservation service providing a permanent archive of electronic journals, books, and other scholarly content. Portico launched in 2005 with an e-journal preservation service. In 2009, Portico ingested the first eBooks into the Portico archive as part of an aggregated e-journal and eBook preservation service and fulfilled its first eBook post-cancellation access request in 2010. In 2011, Portico began to offer a separate eBook preservation service in order to allow libraries and publishers to select the preservation services best suited to their particular needs. The Portico eBook preservation service is modeled after the Portico e-journal preservation service; libraries and publishers both contribute to defray the costs of preservation. Publishers commit their current and future eBook holdings to Portico for preservation. eBook content is made accessible to all institutions participating in the eBook service in the case of a trigger event: cessation of a publisher's operations, discontinuation of a title by a publisher, removal of back issues or a portion of a title by a publisher, or catastrophic and sustained failure of a publisher's delivery platform. In addition, publishers have the option to designate Portico as one of their post cancellation access (also known as perpetual access) methods to eBooks. The preservation actions Portico takes with eBooks match those of both the Portico e-journal and d-collection preservation services. To meet our rigorous definition of preservation — the series of management policies and activities necessary to ensure the enduring usability, authenticity, discoverability, and accessibility of content over the very long term — Portico is guided by the following principles:

- Preservation metadata describing the technical and bibliographic natures of the content preserved is gathered as the content is being processed into the archive.
- Preservation must be practical (for example, migration of files to new formats is only done when it is necessary and is not preemptively performed without valid archive management reasons.)
- The Portico archive is self-describing and contains sufficient information and documentation to make it possible for a third-party to understand and manage the archive.
- The Portico archive is a dark archive, but transparency to participants is required. To that end, Portico provides audit privileges to participants and regularly reports on content in the archive.
- The preserved content is replicated to multiple on-line and off-line locations on multiple continents.

- The preserved content is regularly checked for bit rot and corruption and any problems are immediately corrected.
- The hardware on which and machine rooms in which the preserved content is located must be maintained to industry standards.
- Portico receives accreditation - Portico was certified as a trusted, reliable digital preservation solution by the Center for Research Libraries (CRL) in 2010.

As of June 2011, Portico has over 5,000 eBooks preserved from four publishers and over 100,000 eBooks committed to the archive from twelve publishers.

6. The Nature of Distance Learning

Distance learning refers to situations in which learners are physically separated from the educational provider, communicating in writing (by postal mail, e-mail, fax, or computer conferencing), verbally (by telephone, audio conferencing, or videoconferencing), or in – periodic tutorial sessions. Distance learning courses are not like traditional face-to-face courses. They require different media, delivery methods, course design, evaluation methods, and learner-support structures.

Adaptation is the process of modifying learning materials from their original form to a form usable for distance learning. If materials are designed specifically for a particular learner population in a particular context, they may be totally unsuitable for use with a different learner population or in a different environment. The process of learning material adaptation involves facilitating the material's effective use in a different context with different learners.

7.1. Why E-Books Should Matter to Distance Learners

The introduction of online learning, lectures, course materials, and journals has opened up a whole new perspective into the possibilities of distance learning for students across countries and continents. Distance learning may one day replace the actual teaching occupation. E-books have global reach and accessibility. It can reach to the most remote of places for distance-learning students. It was reported in Peterson that the enrolment of distance learning classes in the academic year 1997-1998 was five million students. This implied that distance-learning students depended upon full-text electronic resources.

There are several distinct advantages offered by e-books over the traditionally printed counterpart. These advantages are inherent in the format of the electronic devices, and the features and flexibility of the digital instrument's offer that could not be realised and will never be possible through the printed book. Some of the advantages are enumerated here:

7.1.1. Instant Accessibility and up-to-date Content

One of the fundamental strengths of the book is the instant mode of publication. The e-book has enabled instant worldwide distribution of content over the Internet. Educational institutions can offer instant access of online lecture materials such as the latest updated reading lists to students. Students can download the contents direct from the Internet at their own convenience. The course materials can be updated easily, and the most current editions will take less time to publish. Students searching for library references do not have to loan the physical print book from the library or worry about damaging the printed copy. Similarly, the virtual e-book library is open for access to users 'anytime, anywhere', much like a 24-hour convenience store. For example, the full listing of e-books can be integrated onto the library's online public access catalogue (OPAC) database, offering a complete substitute or optional alternative for library users.

7.1.2. Compactness and Portability

Another advantage of e-book is its compact nature. This portability feature makes it ideal for users who are always on the move. The reader appliance can store many titles into its hardware memory and can hold an entire library collection, thus offering convenience for users. From the perspective of library management, it eliminates the need for physical shelf space. Costs for rental and bookshelf procurement will be drastically reduced.

7.1.3. Searchability and Multimedia Possibilities

The contents of each digital document can be value-added. The contents can be customised, expanded or updated according to what the users desire. As for the traditional print book, majority of users usually scribble notes in the white space of the print pages, but as for e-books, the complete text can be searched for definitions of highlighted words and results can be derived from its in-built interactive dictionary. Customised notes can be annotated or removed by users electronically. E-books have advantageous functions like text search and retrieval, variable font type and size adjustment, and multimedia display possibilities. Book authors and writers will benefit when they integrate such interactive capabilities into their e-books content.

7.1.4. Longevity and Linkages

The old titles of printed books can go out-of-print but not the eBook as it is easily replaced and duplicated. It is good way to preserve rare, limited edition books in the virtual library.

8. Born Digital - Interactive Textbook

When a university college textbook, Principles of Biology, comes out from the Nature Publishing Group in January'11, it won't be on the shelves of school bookstores. That's because the book was designed to be digital-only. Students will pay not for a printed edition at a bookstore, but for permanent access on the Internet. And when they open the book on their desktops, laptops, tablets and smart phones, they will find other following differences, too.

8.1. Integrated Learning: Each module integrates text, high quality figures, interactive exercises, simulations, video, and assessments into a single, rich flow of learning for the student.

8.2. Customization: Instructors can easily customize Principles of Biology by rearranging or deleting any of the 200 modules, adding their own material, and turning on and off particular sections within the modules.

8.3. Anytime, Everywhere Access: All content in Principles of Biology is fully accessible on desktop and laptop computers, mobile phones, and tablet computers, ensuring that you and your students can take advantage of the material wherever we are.

8.4. Real-time Grade book: Each of the 200 modules in Principles of Biology concludes with a multiple-choice online test of key concepts covered. The results from this test feed automatically into a grade book, allowing instructors to track how their class as a whole is grasping the material down the level of individual questions and learning objectives.

Furthermore, Digital book technology also allows for the possibility that future readers can go directly to the cited paragraphs in referenced books rather than seeing mere footnotes, and e-books will soon be able to accommodate interactive features such as reader annotations, discussion forums, blogs, and electronic tests to support sustained analysis and measure reader understanding at designated points throughout the text. For distance educators as well as traditional classroom educators, such components

would not only enhance student access to information but would also help revolutionize the processes of reading, analyzing, and researching in their courses.

Aside from the obvious benefits of portability, there are some very redoubtable reasons why the e-book is a force to reckon with. To start with, they're quicker to procure, and you could have the digital copy of the book in question as soon as you place the order. We spare a thought for the differently-able students as well. E-books can cater to them with most software supporting text-to-voice capabilities.

That said the dead-wood variant of the book does score on some key criteria. For starters, it doesn't need a manual to operate a paper book. The devices—PCs, laptops, dedicated e-book readers and many mobile phones—needed to read e-books require an additional outlay, which for many may prove to be the biggest deterrent. Compatibility issues are rife in the e-book space and that proper network connectivity to digital libraries is play a key role to effective usage, not to mention power requirements to run these devices.

Above all, the well-rooted cultural mindsets around reading from a screen rather than a book affect uptake and usage in India. If our students and faculty are only using the e-book for printing out a paper version, they're defeating the purpose.

9. Practical Concerns of Libraries in dealing with e-Books

Libraries are the largest consumers of books, there is need to look into various concerns which have been a bother to libraries in their quest to include e-books into their collection. Here are some instances:

i) A recent survey done by Unisphere Research, a division of Information Today, Inc., found that of 1,201 libraries polled in North America, an average of 41% of libraries report an increase in patron requests for e-books over the past year. Individual libraries see this in increased demand for Over Drive downloadable books service and NetLibrary digital titles. Amidst all the demand is the rapidly changing e-book market. Publishers and libraries are working through the challenges of compatibility, digital rights management (DRM), and format types, among other issues, and are seeking creative ways to develop a model that provides the service to library patrons. In February 2011, HarperCollins declared its books could only be downloaded 26 times before the library would be required to re-purchase the title. The following represents other models that could be considered instead of limiting the number of checkouts per title.

ii) Iris Jastram and Steve Lawson present an option which would allow libraries to buy, lend, and preserve e-books in much the same way libraries purchase print books. Libraries will purchase, not license, e-books from publishers or other sources. The entire process would be based on current copyright law and libraries would have right of first purchase. If the copyright is not respected, publishers would still retain the right to sue for copyright infringement and damages.

iii) Libraries could retain a third party vendor to manage both access to and preservation of the e-books or some libraries may prefer to self-manage access and storage. In either case, it is essential that the files are preserved, loan policies and copyright are respected, and that patron information remains private.

iv) Chad Mairn, an Information Services Librarian at St. Petersburg (FL) College offers another model for e-book service. He suggests that library users should have unlimited access to e-books which should include a piece of code that automatically pays the publishers "per

read".   There would be no waiting lines and more people would be reading the same popular book at the same time (one title many readers). E-books that aren't read would disappear because, quite frankly, no one wants them anyway.

v)   Patron authentication will continue to be key to legal sharing of e-books. Authentication is similar to the model for Freegle music downloads. This model of e-book service is probably cost-prohibitive for most public libraries, but may be a model of e-book service to explore in the future. More options are being explored by the library community and the conversations continue. Organizations like Library Renewal have been created to do research and form strategic relationships in order to ensure that communities can always reap the benefits of a library, even as technology evolves and content migrates to digital formats.

Another great facility in using e-books is the abundant free resources that are available today to get e-books. Many websites currently offer free e-books that have great share among all the eBooks. Free resources range from the original site for free text online, Project Gutenberg, to search engines that search e-book sources. Librarians will have to constantly monitor this evolving market as surely as library users continue to purchase e-readers and then look for reading material. For libraries to succeed and survive, e-books must be part of the library's menu of services and resources.

Conclusion

Given the dramatic increase in publication and sales of eBooks and the growing reliance of the academic community on eBooks, the moment has arrived to address the preservation needs of eBooks. The preservation of eBooks may be met in numerous ways, including preservation through community supported independent archives such as Portico, national preservation efforts, or cooperative efforts among like-minded institutions. While eBooks offer many unique challenges, if the community begins to preserve the entirety of eBooks right now, those challenges can be addressed over time. The proliferation of distance learning in the contemporary societies, will witness a paradigmatic shift by the effective utilization of the opportunities opened by the advent of e-books.

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